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09/608,620	06/30/2000	Karl Blume	3309P-114	9440

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EXAMINER
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ROSALES HANNER, MORELLA I

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 12/04/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/608,620

**Applicant(s)**

BLUME ET AL.

**Examiner**

Morella I Rosales-Hanner

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 06/30/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### Objections

1. The attempt to incorporate subject matter into this application by reference is improper because of **blank filling dates** and **Attorney Docket numbers**. Applicant must provide the corresponding patent application numbers or patent numbers along with filling dates and remove Attorney Docket numbers.

For instance, instead of citing the reference as:

Attorney Docket No. F-7954, filed on \_\_\_\_\_, entitled "Method of Creating a Parametric Model in a CAD System".

Applicant is asked to cite the reference as:

U.S patent application 09/212,923, filed on Dec 16, 1998, now abandoned, entitled "Method of Creating a Parametric Model in a CAD System".

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### **Double Patenting**

**2.** The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**2.1 Independent claims 1, 17 and 22** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over:

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**U.S. Patent No. 6,587,741 B1** issued to Chetta et al. on July 1, 2003, hereafter referred to as *Chetta 1*; and

**U.S. Patent No. 6,393,331 B1** issued to Chetta et al. on May 21, 2002, hereafter referred to as *Chetta 2*

Although the conflicting claims are not identical, they are not patentably distinct from each other.

**2.2** In regard to **independent claims 1 and 17** the applicant <sup>Chetta 1</sup>discloses a method of designing a component of a gas turbine engine comprising the steps of:

*creating a knowledge base of signals having a plurality of design rules with respect to a corresponding plurality of parameter signals of associated elements of an engine case static structure, wherein the knowledge base comprises a data value signal for each one of the plurality of design rule signals;*

*entering a desired data value signal for a selected one of the plurality of parameters signals of an associated element of the engine case static structure;*

*comparing the entered desired data value signal with the corresponding data value signal in the knowledge base for the corresponding one of the plurality of design rules signals; and*

*creating a geometric representation of the selected one of the plurality of parameters of the associated element of the engine case static structure.*

<sup>Chetta 1</sup>  
The method disclosed by *Chetta 1* <sup>in claim 1</sup> comprises of the steps of:

creating a knowledge base of information having a plurality of rules with respect to a corresponding plurality of parameters. Wherein the knowledge base comprises at least one data value for each one of the plurality of rules, which is equivalent to step 1 of the method <sup>previously</sup> disclosed by the applicant in **claims 1 and 17**;

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entering a desired data value for a selected one of the plurality of parameters of an associated element of the component of the gas turbine engine under design, which is equivalent to step 2 of the method disclosed by the applicant in **claims 1 and 17**;

comparing the entered desired data value for the selected one of the plurality of parameters with the corresponding at least one data value in the knowledge base for the corresponding one of the plurality of rules, which is equivalent to step 3 of the method disclosed by the applicant in **claims 1 and 17**; and

creating a geometric representation of the selected one of the plurality of parameters of the associated element of the component of the gas turbine engine under design, which is equivalent to step 4 of the method disclosed by the applicant in **claims 1 and 17**.

**2.3** In regard to **independent claim 22**, the applicant discloses a computerized system for designing an engine case static structure of a gas turbine engine, comprising:

*A knowledge base including a plurality of design rule signals for generating model configuration signals, wherein each of the design rule signals has a first relationship with a design parameter signal;*

*input means for receiving a design parameter value signal corresponding to the design parameter signal;*

*evaluation means for comparing the design parameter value signal with the plurality of design rules signals;*

*adjustment means for modifying the model signals utilizing the design parameter value signal and the plurality of design rule signals; and*

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*creation means for generating signals representative of a geometric representation of the model signals.*

*Chetta 2* discloses [column 21, line 17] a computerized system for designing a spline coupling, comprising:

a knowledge base including a plurality of design rule signals for generating model configuration signals, wherein each of the design rules signals has a first relationship with at least one of the plurality of design parameter signals, which is equivalent to the knowledge base claimed by the applicant in **claim 22**;

Input means for receiving a design parameter value signal corresponding to one of the plurality of design parameter signals, which is equivalent to the input means claimed by the applicant in **claim 22**;

evaluation means for comparing the design parameter value signal with the plurality of design rule signals, which is equivalent to the evaluation means claimed by the applicant in **claim 22**;

adjustment means for modifying model configuration signals utilizing the design parameter value signal and the plurality of design rule signals, which is equivalent to the adjustment means claimed by the applicant in **claim 22**;

creation means for generating signals representative of a geometric representation of the model configuration signals, which is equivalent to the creation means claimed by the applicant in **claim 22**.

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**Claim Rejections - 35 USC § 102**

**3.** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).



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**3.1 Claims 1 – 6 and 10 – 22** are rejected under 35 U.S.C. 102(e) as being unpatentable over U.S. Patent 6,393,331 B1 issued on May 21, 2002, to Chetta et al. hereafter referred to as *Chetta*.<sup>2</sup>

**3.2** In regard to claims **1, 17 and 19 – 22**, *Chetta* discloses [column 19, line 26] a design method comprising of:

creating a knowledge base of information having a plurality of rules with respect to a corresponding plurality of parameters of associated elements of a the part of a gas turbine engine under design, wherein the knowledge base comprises at least one data value for each one of the plurality of rules, which is equivalent to the knowledge base claimed in **claims 1 and 17, 21 and 22**;

entering a desired data value for a selected one of the plurality of parameters of an associated element of the part of an gas turbine engine under design, which is equivalent to the applicant's second step of the method claimed in **claims 1 and 17, 21 and 22**, *Chetta* also discloses [column 7, line 5] a workstation represented in **Fig. 3** containing a keyboard **118** and a mouse **120** that are both use to input information, which is equivalent to the input means claimed in **claim 19**;

comparing the entered desired data value for the selected one of the plurality of parameters with the corresponding at least one data value in the knowledge base for the corresponding one of the plurality of rules, which is equivalent to the applicant's third step of the method claimed in **claims 1, 17, and 21**;

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creating a geometric representation of the selected one of the plurality of parameters of the associated element of the part of an gas turbine engine under design if the result of the step of comparing is such that the entered desired data value for the selected one of the plurality of parameters is determined to have a first predetermined relationship with respect to the corresponding at least one data value in the knowledge base for the selected one of the plurality of rules, which is equivalent to the applicant's fourth step of the method claimed in **claim 1** and also equivalent to the means for creating a geometric representation claimed in **claims 21 and 22**; this method further comprising the step of updating the model of the part of the gas turbine engine under design with the selected one of the plurality of parameters of the associated element of the part of the gas turbine engine under design, which is equivalent to the fourth step claimed in **claim 17** as well as the creation means claimed in **claim 22**, *Chetta* also discloses [**column 7, line 5**] a workstation represented in **Fig. 3** containing a keyboard **118** and a mouse **120** that are both use to input information, which is equivalent to the updating means claimed in **claim 20** .

In regard to **claim 2**, *Chetta* discloses [**column 19, line 58**] that the step of: creating a geometric representation of the selected one of the plurality of parameters of the associated element of part of a gas turbine engine under design further comprises the step of updating the model of the part under design with the selected one of the plurality of parameters of the associated element of part under design, which is equivalent to the step claimed in **claim 2**.

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In regard to **claim 3**, *Chetta* discloses [column 19, line 65] modifying the entered desired data value for the selected one of the plurality of parameters if the result of the step of comparing is such that the entered desired data value for the selected one of the plurality of parameters is determined to have a second predetermined relationship with respect to the corresponding at least one data value in the knowledge base for the selected one of the plurality of rules.

In regard to **claim 4**, *Chetta* discloses [column 20, line 6] the steps of: comparing the modified data value for the selected one of the plurality of parameters with the corresponding at least one data value in the knowledge base for the corresponding one of the plurality of rules, which is equivalent to applicant's first step claimed in **claim 4**; and

creating a geometric representation of the selected one of the plurality of parameters of the associated element of the part of a gas turbine engine under design if the result of the step of comparing the modified data value is such that the modified data value for the selected one of the plurality of parameters is determined to be of the first predetermined relationship with respect to the corresponding at least one data value in the knowledge base for the selected one of the plurality of rules, which is equivalent to applicant's second step claimed in **claim 4**.

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In regard to **claim 5**, *Chetta* discloses [**column 20, line 21**] the step of storing the created knowledge base of information, which is equivalent to the step claimed in **claim 5**.

In regard to **claims 6 and 18**, *Chetta* discloses [**column 20, line 23**] the step of displaying the created geometric representation of the elected one of the plurality of parameters of the associated element of the part of a gas turbine engine under design, which is equivalent to the step claimed in **claims 6 and 18**.

In regard to **claim 10**, *Chetta* discloses [**column 19, line 51**] the step of analyzing the created geometric representation of the selected one of the plurality of parameters of the associated element of the part of the gas turbine engine under design, which is equivalent to the step claimed in **claim 10**.

In regard to **claim 11**, *Chetta* discloses [**column 19, line 54**] the step of performing further analysis on the created geometric representation of the selected one of the plurality of parameters of the associated element of the part of the gas turbine engine under design, which is equivalent to the step claimed in **claim 11**.

In regard to **claim 12**, *Chetta* discloses [**column 19, line 58**] the step of creating a geometric representation of the selected one of the plurality of parameters of the associated element of the part of the gas turbine engine under design further comprises the step of updating the model of the part of the gas turbine engine under design with

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the selected one of the plurality of parameters of the associated element of the part of the gas turbine engine under design, which is equivalent to the step claimed in **claim 12**.

In regard to **claim 13**, *Chetta* discloses [column 20, line 35] that each data value for each of the plurality of rules in the knowledge base comprises a numerical value, which is equivalent to the data value signal claimed in **claim 13**.

In regard to **claim 14**, *Chetta* discloses [column 20, line 38] that each data value for each of the plurality of rules in the knowledge base comprises a range of values, which is equivalent to the data value signal claimed in **claim 14**.

In regard to **claim 15**, *Chetta* discloses [column 20, line 41] the step of entering a desired data value for a selected one of the plurality of parameters of an associated element of the part of a gas turbine engine under design comprises the steps of:

making available at least one data value for each one of the plurality of parameters of the associated element of the part of a gas turbine engine under design, which is equivalent to the first step claimed by the applicant in **claim 15**; and

selecting a desired data value for the selected one of the plurality of parameters of the associated element of the part of a gas turbine engine under design from the made available at least one data value for each one of the plurality of parameters of the associated element of the part of a gas turbine engine under design, which is equivalent to the second step claimed by the applicant in **claim 15**.

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In regard to **claim 16**, *Chetta* discloses [column 20, line 54] the step of providing a visual display containing a graphic depiction of a data value for each one of the plurality of parameters of the associated element of the part of a gas turbine engine under design, which is equivalent to the step claimed in **claim 16**.

### **Claim Rejections - 35 USC § 103**

**4.** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**4.1** **Claims 7, 8, 9, 23, 24, 25, 26 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **U.S. Patent No 6,393,331 B1** issued to **Chetta et al.** filed on Dec. 16<sup>th</sup> 1998 hereafter referred as *Chetta* in view of **U.S. Patent No. 6,625,507 B1** issued to Dickerson et al. filed on Feb. 23, 2000 hereafter referred as *Dickerson*.

**4.2** The limitations of independent **claims 1 and 22** have already been rejected by the examiner, *see examiners rejection section 3.2 above*.

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**4.3** In regard to **claims 7, 8, 23 and 24**, Chetta discloses [column 2, line 51] a computer-based method that generates model configuration and parameter data, which typically satisfy the model design requirements. This output comprises a file containing data (e.g. dimensions) defining the various parameters and configuration features associated with each component or element of the product. The Examiner notes that the method disclosed by *Chetta* does not generate manufacturing, configuration or dimension parameters that are specific to the design of an engine case static structure.

*Dickerson* discloses [column 5, line 36] a product model software program that generates configuration default parameters, which include quantity, position and dimensions of attachment means, such as spline couplings, for shaft system components and allows modifications to the parameters and the resulting low pressure turbine shaft system model in order to facilitate rapid automated engineering product design, thereby allowing high quality products to get to market quicker. For this reason, it would have been obvious to one of ordinary skills in the art to modify the method disclosed by *Chetta* to generate manufacturing and performance parameters that are specific to the design of an engine case static structure of a gas turbine engine in order to facilitate a rapid automated engineering product design that allows the design of a high quality case static structure of a gas turbine engine to get to market faster.

**4.4** In regard to **claim 9**, the applicant discloses a method further including the steps of receiving aerodynamic and thermodynamic performance requirements and creating a

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default geometric representation of the engine case static structure utilizing aerodynamic and thermodynamic performance parameter signals, and the design rule signals.

*Chetta* discloses [column 11, line 67] a system that generates a valid, parametric, three-dimensional, geometric model of a segment of an outer air seal using user-input data verified against the knowledge base of configuration-dependent parameter relationships and constraints stored in the disclosed system. The system inherently contains a number of common geometric primitives (e.g., a cylinder) that it utilizes in creating the model. The Examiner notes that the *Chetta* reference does not explicitly disclose using aerodynamic and thermodynamic performance parameter signals as part of the user-input data it uses to generate the geometric model.

*Dickerson* discloses [column 9, line 5] a computer program that contains graphical user interface (GUI) screens, such as the one shown in **FIG.2**, that guide the user while entering data and information. These GUI screens provide a visual display and graphic depictions of various model configuration and parameter data value selections to the user, allowing the user to select a desired default data value, or to enter a desired data value, such as: the clearance envelopes to meet air flow requirements and temperature performance parameters which must be met for the long shaft, or torque tube, the stub-shaft, and the aft-hub. *Dickerson* further discloses [column 11, line 64] that a user can select the Create button [Fig 3, element 78] to generate a valid, parametric, three dimensional, geometric model of the shaft system,



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using the user-input data verified against the knowledge base of configuration-dependent parameters relationships and constraints. This is done to facilitate rapid automated engineering product design, thereby allowing high quality products to get to market quicker. For this reason, it would have been obvious to one of ordinary skills in the art to modify the method disclosed by *Chetta* to receive signals representing performance requirements signals and using these signals and the design rules/constraints stored in the knowledge base to generate a geometric representation of the engine case static structure.

**4.5** In regard to **claim 25**, the applicant discloses a computerized system that includes cautionary means for generating a warning signal if the parameter value signal does not satisfy the plurality of the design rule signals; and means for displaying the warning.

*Chetta* discloses [column 3, line 6] a software program that enables users to perform "what if" analysis by allowing users to change configuration and/or parameter values to assess various design features with regards to functional characteristics such as performance, durability and manufacturability. These characteristics are typically defined in terms of boundaries or limits on the various physical parameters of each product feature. These characteristics comprise rules against which the proposed product design is measured. *Chetta* further discloses [column 12, line 51] that the software program advises the user if any design rules have been violated. The

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Examiner notes that *Chetta* does not explicitly disclose cautionary means for generating a warning signal if users provide design configuration and/or parameter values that are outside the boundaries or limits.

*Dickerson* discloses [**column 17, line 8**] a computerized system with cautionary means for generating a warning signal if a design parameter value signal does not satisfy the plurality of the design rule signals; and means for displaying the warning signal in order to notify the user that design constraints have been violated which would cause the low pressure turbine shaft to not satisfy the design requirements or be non-producible. For this reason, it would have been obvious to one of ordinary skills in the art to add cautionary means for generating a warning signal, to the software program disclosed by *Chetta* to notify the user when design constraints have been violated in order to prevent the manufacturing of a product that do not satisfy design requirements.

**4.6** In regard to **claims 26 and 27** the applicant discloses a computerized system that includes: material parameter signals received from the input means; means for generating weight signals for the engine case static structure model utilizing material parameter signals and engine case static structure model signals.

*Chetta* discloses [**column 3, line 6**] a software program that typically performs a "what if" analysis on the model by allowing the user to change model configuration and/or parameter values and then assess the resulting model. *Chetta* further discloses that other analyses (e.g., a fatigue life analysis) may be run to assess various model

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features with regard to such functional characteristics as performance, durability and manufacturability. These characteristics generally relate to the manufacturing and operation of a product designed by the product model software program. *Chetta* does not explicitly disclose means for generating weight analysis report.

*Dickerson* discloses [**column 17, line 39**] a computerized system comprising means for generating weight signals, for the low-pressure turbine shaft, using shaft and hub material parameter signals as well as low pressure turbine shaft configuration signals. In this way, the user can assess the weight of the design, chosen for the low pressure turbine shaft system model, to ensure that it will meet design constraints.

*Dickerson* further discloses [**column 17, line 43**] design parameter signals that include performance parameter signals for generating analysis signals of the low pressure turbine shaft configuration signals, and manufacturing parameter signals for establishing manufacturing constraints and preferences for the low pressure turbine shaft configuration signals. This is done to aid a user who is familiar with design constraints but who may not be familiar with manufacturing constraints or preferences of a particular company. For this reason, it would have been obvious to one of ordinary skills in the art to modify the computerized system disclosed by *Chetta* to provide means for generating weight analysis signals using material parameters, manufacturing parameters and configuration signals for establishing manufacturing constraints and preferences.

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**Response Guidelines**

**5.** A shortened statutory period to response to this action is set to expire 3 (three) months and 0 (zero) days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

Any response to the Examiner in regard to this non-final action should be directed to:

Morella Rosales-Hanner

Telephone number (703) 305-8883

Monday-Friday from 7:00 a.m. to 3:30 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703 305-9704. Any inquiry of a general nature should be directed to the Technology Center (TC) 2100 receptionist, telephone number (703) 305-3900. The TC 2100 receptionist, telephone number (703) 306-5631.

**Mailed to:** Commissioner of Patents and Trademarks

Washington, D.C. 20231

**Or faxed to:** (703) 872-9306

Hand-delivered responses should be brought to:

Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Fourth Floor (Receptionist)

Morella Rosales-Hanner



**RUSSELL FREJD  
PRIMARY EXAMINER**